# Summary of the Massachusetts 'Stretch' Energy Code

Appendix 115.AA of the Massachusetts building code, known as the 'stretch' energy code, was adopted by the Board of Building Regulations and Standards in May 2009, as an option for towns and cities interested in more energy efficient building standards than the state 'base' energy code. The stretch code amends the MA base energy code (IECC 2009), to achieve approximately a 20% improvement in building energy performance.

## Residential

New residential buildings 3-stories or less are required to meet an energy performance standard using the Home Energy Rating System (HERS). The HERS index rates each home on a scale where 0 is a zero-net-energy home, and 100 is a typical new home built in 2006. The HERS index has been in use for many years in programs such as: Energy Star homes, LEED homes, and by the Federal IRS to qualify homes for tax credits and energy efficient mortgages. HERS ratings are performed by a 'HERS rater', an independent certified building energy professional, working with the home builder. HERS ratings are submitted to the local building code official in draft form at plan review and final form on building completion.

## **Stretch code exceptions:**

The stretch or base energy code is not triggered in the following situations:

- Storm windows added to existing windows
- Window repairs to an existing sash and frame
- Reroofing or residing over uninsulated roofs or walls where the sheathing is not exposed.

### **Requirements: New homes**

- 3,000 ft<sup>2</sup> or larger: HERS index of 65 or less
- less than 3,000 ft<sup>2</sup>: HERS index of 70 or less

In multi-unit buildings, the unit size determines the HERS score needed.

#### In addition:

- Mandatory requirements of the base energy code (IECC 2009)
- Builders and HERS raters must complete the Energy Star Homes Thermal checklist.

#### Requirements: Existing home renovations and additions

Home additions and renovations have two options to meet the stretch code:

#### Option 1) Performance path: whole house - HERS rating option

- Existing homes 2,000 ft<sup>2</sup> or larger: HERS index of 80 or less
- Existing homes less than 2,000 ft<sup>2</sup>: HERS index of 85 or less
- Home additions less than 3,000 ft<sup>2</sup>: HERS index of 70 or less
- Home additions 3,000 ft<sup>2</sup> or larger: HERS index of 65 or less

### In addition:

- Mandatory requirements of the base energy code (IECC 2009)
- Builders and HERS raters must complete the relevant portions of the Energy Star Homes Thermal checklist.

### **Option 2) Prescriptive path: partial house option (HERS rater not required)**

- Any portions of a building modified by renovation must be brought up to code, or insulated to fill open wall/ceiling/floor cavities whichever is less.
- Any new windows, doors or skylights must meet Energy Star 5.0 standards.
- Any new ducted heating or cooling systems outside the insulated space must be tested and meet a maximum of 4% leakage to outside.
- Builders must complete the relevant portions of the Energy Star Homes Thermal checklist.

## **Commercial Buildings**

The stretch code applies to new commercial buildings and additions over 5,000 ft<sup>2</sup>.

#### **Exemptions:**

- New commercial buildings smaller than 5,000 ft<sup>2</sup>
- Existing commercial building renovations,
- "Specialty" buildings supermarkets, laboratories, and warehouses less than 40,000 ft<sup>2</sup>, due to their widely differing energy needs.

These 'stretch code exempt' buildings remain subject to the base MA commercial energy code (IECC 2009 or ASHRAE 90.1-2007 with MA amendments).

# New large commercial buildings (over 100,000 ft<sup>2</sup>, and "specialty" buildings over 40,000 ft<sup>2</sup>)

These buildings are required to meet a 'performance' standard set at 20% below the base energy code. This is based on predicted energy use compared to the commonly used ASHRAE 90.1-2007 standard. This method is also used by buildings applying for LEED energy certification.

# New medium-sized commercial buildings (between 5,000-100,000 ft<sup>2</sup>)

These buildings have two options. They can either use the large building 'performance' standard or use a 'prescriptive' path: a modified version of the base energy code (IECC Chapter 5).

The 'prescriptive' path adds incremental efficiency improvements to the base energy code primarily through:

- Building envelope elements (better walls, roofs, windows, insulation, etc.)
- Commissioning tests to ensure that building energy systems operate as designed
- More efficient lighting power densities and improved lighting controls
- One of three options: high efficiency HVAC equipment, further lighting energy reductions, or on-site renewable energy